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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/602,910

06/24/2003

Shuichi Takayama

UOM 0272 PUSP

2157

22045

7590

05/02/2006

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EXAMINER

NAFF, DAVID M

ART UNIT

PAPER NUMBER

1651

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/602,910	<b>Applicant(s)</b> TAKAYAMA ET AL.	
	<b>Examiner</b> David M. Naff	<b>Art Unit</b> 1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 11-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/13/04</u> . | 6) <input type="checkbox"/> Other: _____  |

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**DETAILED ACTION**

A response of 2/9/06 to a restriction requirement of 12/13/05 elected Group I claims 1-10 without traverse.

5 The restriction requirement states that non-elected claims 11-24 are canceled herewith. However, claims cannot be canceled in this manner. See MPEP 714 (C) (page 700-217) on how to amend the claims by canceling claims.

10 Claims 11-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 2/9/06.

Claims examined on the merits are 1-10.

***Claim Rejections - 35 USC § 112***

15 The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

20 Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

25 Claim 1 is confusing and unclear as to the position of the deformable substrate, brittle layer and coating layer relative to reach other. Are the layers in contact with each other or in some other relationship? The meaning and scope of "deformable substrate"

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and "brittle layer" is uncertain. Being deformable and brittle is relative and subjective. It is uncertain as to materials that are deformable and brittle, and are not deformable and brittle. Claim 1 is unclear as to the material coated by the coating layer. Being  
5 adjacent to the brittle layer does not require the coating layer to be a coating on the brittle layer. In line 4, the claim is unclear as to "physicochemical properties" of the coating layer that differ from such properties of the brittle layer. Properties that are "physicochemical" are relative and subjective. In line 6 of the  
10 claim, physical phenomena that is a "strain" is uncertain. In line 7, the claim is unclear as to the layer that contains the surfaces exposed.

Claim 1 is further unclear by line 1 requiring a method of nanopatterning of a substrate, and not requiring in the steps  
15 performed producing a substrate having nanopatterning. The claim is unclear as to the physical features that are the nanopatterning, and when during the steps performed the nanopatterning occurs. Are the cracks of nano size and have a pattern? Also, is the substrate in line 3, the same as the substrate in line 1, or are these different  
20 substrates. If different substrates, how do they differ?

Claim 4 is unclear as to whether both stretching and bending are required, and when bending and stretching occur with respect to each other. Does stretching cause bending or does bending result from some other cause? Does bending occur at the same time as stretching or is

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bending and stretching at different times? In line 2, "artical" is a misspelling.

Claim 5 is unclear as to the difference in the silaceous layer from the polyorganosiloxane elastomer. The polyorganosiloxane contains siloxane, it can be considered a silaceous material.

Claim 8 is confusing and unclear by not having clear antecedent basis for "said exposed surface. Additionally, it would be uncertain as to material that constitutes a "bioactive coating". Being "bioactive" is relative and subjective, and it will be uncertain as to materials that are and are not bioactive.

Claim 9 is unclear how oxidizing changes the polyorganosiloxane to a form that is silaceous and not the polyorganosiloxane. It appears the oxidized polyorganosiloxane will still be a polyorganosiloxane. Additionally, in line 2 of the claim, there is not clear antecedent basis for "said polyorganosiloxane deformable substrate". Claim 5 requires a polyorganosiloxane elastomer.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1-4 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Alburger et al (3,791,198).

The claims are drawn to nanopatterning a substrate by supplying a multilayer article comprising at least one deformable substrate, brittle layer and coating layer, and exerting a strain on the article to produce cracks in the brittle layer exposing surfaces in the cracks having no coating.

Alburger et al coating an aluminum sheet with an anodic coating, and coating the anodic coating layer with sodium silicate (col 3, lines 38-53, and claims 1-5). The aluminum is malleable, the anodic coating layer is brittle, and applying stress by bending and stretching forms cracks in the brittle layer (paragraph bridging cols 3 and 4, and col 4, lines 5-39).

The method of Alburger et al is the same as presently claimed. The aluminum is deformable, the anodic coating is brittle, and the sodium silicate is a coating over the brittle anodic coating. Bending and stretching produces strain that forms cracks in the brittle anodic coating inherently exposing surfaces and forming a nanopattern. The bending and stretching will inherently provide strain as required by claims 2-4 and 10.

### **Conclusion**

Claims 5-9 are free of the prior.

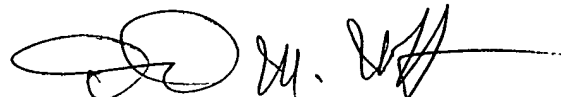
Clark et al (4,802,951) is made of record to show nanopatterning by providing nanometer size features.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone number is 571-272-0920. The examiner can normally be reached on Monday-Friday 9:30-6:00.

5 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10 Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see [http://pair-](http://pair-direct.uspto.gov)  
15 [direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David M. Naff  
Primary Examiner  
Art Unit 1651

20 DMN  
4/28/06